

Environmental Ethics

Environmental Ethics is the study of the values and moral status of human-environment interactions. Ethicists in the field have several goals; a)To challenge human-centred ways of thinking; b)To explore eco-feminism and social ecology; c)To integrate traditional philosophical models with current environmental issues; and d)To promote an ethical (or at least thoughtful) approach to the environment.

Environmental Ethics is a relatively young field. Since around the 1930's, scientists and other observant people began to seriously worry about the impacts of human activities on the Earth. Interest in these issues became widespread in the 1960's, and in the '70's, Environmental Ethics emerged as an academic field. This is why it's relatively difficult to find an academic program devoted exclusively to Environmental Ethics. Many environmental degree programs, however, offer (or require) classes in the field.

Human Values & Professional Ethics

OBJECTIVES:

- ❖ To understand the moral values that ought to guide the Management profession, resolve the moral issues in the profession.
- ❖ To justify the moral judgment concerning the profession.
- ❖ Intended to develop a set of beliefs, attitudes, and habits that engineers should display• concerning morality.
- ❖ To create an awareness on Management Ethics and Human Values.
- ❖ To inspire Moral and Social Values and Loyalty.
- ❖ To appreciate the rights of others.

Programme	Course Code	Course Name
B.Tech (Automobile Engineering)	R161212	Environmental Studies
	R163149	Professional Ethics & Human Values
B.Tech (Computer Science and Engineering)	R161212	Environmental Studies
	R163149	Professional Ethics & Human Values
B.Tech (Electronics and Communication Engineering)	R161212	Environmental Studies
	R1631049	Professional Ethics & Human Values
B.Tech (Electrical and Electronics Engineering)	R161212	Environmental Studies
	R1632029	Professional Ethics & Human Values
B.Tech (Mechanical Engineering)	R161212	Environmental Studies
	R1632029	Professional Ethics & Human Values

JNTUK B.Tech Environmental Studies R13 Syllabus for Engineering it gives you detail information about Environmental Studies syllabus.

Course Learning Objectives

The objectives of the course is to impart

- Overall understanding of the natural resources.
- Basic understanding of the ecosystem and its diversity.
- Acquaintance on various environmental challenges induced due to unplanned anthropogenic activities.
- An understanding of the environmental impact of developmental activities.
- Awareness on the social issues, environmental legislation and global treaties.

Course Outcomes

The student should have knowledge on

- The natural resources and their importance for the sustenance of the life and recognise the need to conserve the natural resources.
- The concepts of the ecosystem and its function in the environment. The need for protecting the producers and consumers in various ecosystems and their role in the food web.
- The biodiversity of India and the threats to biodiversity, and conservation practices to protect the biodiversity.
- Various attributes of the pollution and their impacts and measures to reduce or control the pollution along with waste management practices.
- Social issues both rural and urban environment and the possible means to combat the challenges.
- The environmental legislations of India and the first global initiative towards sustainable development.
- About environmental assessment and the stages involved in EIA and the environmental audit.

UNIT – I

Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health.

Ecosystems: Concept of an ecosystem. – Structure and function of an ecosystem. – Producers, consumers and decomposers. – Energy flow in the ecosystem – Ecological succession. – Food chains, food webs and ecological pyramids. – Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.

UNIT – II

Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people. Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.

Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity. Energy resources: Growing energy needs,

renewable and non-renewable energy sources use of alternate energy sources. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT – III

Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification – Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation – Hot-spots of biodiversity – Threats to

biodiversity: habitat loss, man-wildlife conflicts. – Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.

UNIT – IV

Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. – Pollution case studies.

Solid Waste Management: Sources, classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products.

UNIT – V

Social Issues and the Environment: Urban problems related to energy – Water conservation, rain water harvesting-Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. – Public awareness.

UNIT – VI

Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism The student should submit a report individually on any issues related to Environmental Studies course and make a power point presentation.

Text Books

- Environmental Studies by R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.
- A Textbook of Environmental Studies by Shaashi Chawla, TMH, New Delhi.
- Environmental Studies by P.N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai.
- Reference
- Text Book of Environmental Studies by Deeshita Dave & P. UdayaBhaskar, Cengage Learning.
- Environmental Studies by K.V.S.G. Murali Krishna, VGS Publishers, Vijayawada.
- Environmental Studies by Benny Joseph, Tata McGraw Hill Co, New Delhi.
- Environmental Studies by Piyush Malaviya, Pratibha Singh, Anoop singh: Acme Learning, New Delhi.

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UNIT I : Human Values

Morals, Values and Ethics – Integrity – Work Ethics – Service Learning – Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing – Honesty –Courage – Value time – Co-operation – Commitment – Empathy – Self-confidence – Spirituality- Character.

UNIT II : Engineering Ethics

The History of Ethics-Purposes for Engineering Ethics-Engineering Ethics- Consensus and Controversy – Professional and Professionalism –Professional Roles to be played by an Engineer –Self Interest, Customs and Religion-Uses of Ethical Theories-Professional Ethics-Types of Inquiry – Engineering and Ethics-Kohlberg's Theory – Gilligan's Argument –Heinz's Dilemma.

UNIT III : Engineering as Social Experimentation

Comparison with Standard Experiments – Knowledge gained – Conscientiousness – Relevant Information – Learning from the Past – Engineers as Managers, Consultants, and Leaders – Accountability – Role of Codes – Codes and Experimental Nature of Engineering.

UNIT IV : Engineers' Responsibility for Safety and Risk

Safety and Risk, Concept of Safety – Types of Risks – Voluntary v/s Involuntary Risk- Short term v/s Long term Consequences- Expected Probability- Reversible Effects- Threshold Levels for Risk- Delayed v/s Immediate Risk- Safety and the Engineer – Designing for Safety – Risk- Benefit Analysis-Accidents.

UNIT V : Engineers' Responsibilities and Rights

Collegiality-Techniques for Achieving Collegiality –Two Senses of Loyalty- obligations of Loyalty-misguided Loyalty – professionalism and Loyalty- Professional Rights –Professional Responsibilities – confidential and proprietary information-Conflict of Interest-solving conflict problems – Self- interest, Customs and Religion- Ethical egoism-Collective bargaining- Confidentiality-Acceptance of Bribes/Gifts-when is a Gift and a Bribe- examples of Gifts v/s Bribes-problem solving-interests in other companies- Occupational Crimes-industrial espionage-price fixing-endangering lives- Whistle Blowing-types of whistle blowing-when should it be attempted- preventing whistle blowing.

UNIT VI : Global Issues

Globalization- Cross-culture Issues-Environmental Ethics-Computer Ethics- computers as the instrument of Unethical behaviour-computers as the object of Unethical Acts-autonomous computers-computer codes of Ethics- Weapons Development-Ethics and Research-Analysing Ethical Problems in Research-Intellectual Property Rights.

Text Books

- “Engineering Ethics & Human Values” by M.Govindarajan, S.Natarajan and V.S.SenthilKumar-PHI Learning Pvt. Ltd-2009.
- “Professional Ethics and Morals” by Prof.A.R.Aryasri, Dharanikota Suyodhana-Maruthi Publications.
- “Professional Ethics and Human Values” by A.Alavudeen, R.Kalil Rahman and M. Jayakumaran- Laxmi Publications
- “Professional Ethics and Human Values” by Prof. D.R. Kiran.
- “Indian Culture, Values and Professional Ethics” by PSR Murthy- BS Publication.
- “Ethics in Engineering” by Mike W. Martin and Roland Schinzinger – Tata McGraw-Hill – 2003.
- “Engineering Ethics” by Harris, Pritchard and Rabins, CENGAGE Learning, India Edition, 2009.

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